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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,904

07/12/2005

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970.1014

7924

21171 7590 05/01/2008

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

05/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,904	Applicant(s) UEDA ET AL.	
	Examiner Cathy Lam	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

In view of the amendment and remarks filed on February 15, 2008, the pending claims continue to be unpatentable as following:

Election/Restrictions

1. Applicant's election without traverse of group I in the reply filed on October 05, 2007 is acknowledged.
2. This application contains claims 6-13 are drawn to an invention nonelected without traverse in the reply. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Objections

3. Claim 3 is objected to because of the following informalities: in line 2 "W₁s" should be changed to -- W₁S --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 2, 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has not clearly definite what "D" is in the claim.

Claim Rejections - 35 USC § 103

5. Claims 1-5 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53-77848 or JP 2000-345373.

The present invention is directed to a metal layer that has one or more cavities.

JP 53-77848 submitted by Applicant, discloses a metal foil (1) that is photo-etched to form via hole.

The metal foil having the via hole is formed by a two-step photo-etching method (Figs. 2 & 3).

The Japanese reference although does not specifically teach the axis of the via holes in the two steps (or axis of the cavities). The examiner however is taking the position that one of ordinary skill in the art would choose a desirable via hole or cavity dimension because modifying such is just a matter of design choice.

Furthermore, Applicant in claims 4 & 5 include some processing steps, such as ".....by primary etching" and " second etching", etc. Applicant is reminded that it is the product itself which must be new and unobvious, see *In re Pinkington* 162 USPQ 145, 147 (C.C.P.A. 1969). Product by process claimed are not patentably distinct over product claims unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process, therefore there will be no weight given to the product by process verses product claims.

JP 2000-345373 also submitted by Applicant, teaches a metal thin board that is etched on both front and back surfaces to form cavities. The etching performed through a photoresist layer having a pattern.

The prior art reference does not disclose the dimensions of the cavities and the etching factor. The examiner is taking the position that choosing a desired cavity size is just a design choice.

Response to Arguments

6. Applicant's arguments filed on Feb. 15, 2008 have been fully considered but they are not persuasive. Applicant in the remarks traverses the art rejection and raises the following issues:

A. Prior art '848 does not teach a method that produce a metal product that has a specific combination of a large cavity and a small cavity as claimed.

B. In prior art '373, the reference only conducted etching twice, thus it cannot provide a metal product that includes a cavity having high aspect ratio.

In respond to the above issues:

A. "848 teaches using a mask and photoetching the metal layer; cavities were formed in the thickness direction of the metal layer. From Fig. 2, the cavities (3) were connected but not the same size or not uniform in their diameters. Fig. 2 also shows that the hole (3) is wider in top portion than in the bottom. The examiner takes the position this meets the large cavity and small cavity as claimed.

B. The prior art might not be he same method as claimed by the applicant, applicant can not attack the prior art by saying it teaches a different method thus it leads to a different product. Applicant is required to show the actual differences between the claimed product and the prior art product. The examiner takes the position that one of ordinary skill in the art can adapt the method disclosed in '373 and perform the process more than what it discloses to achieve a desirable product.

The obviousness rejections are believed to be appropriate.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy Lam/
Primary Examiner, Art Unit 1794